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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/725,779 | 12/02/2003 | Philip J. Pietraski | I-2-0526.1US | 3830 |

24374 7590 12/18/2006

VOLPE AND KOENIG, P.C.
DEPT. ICC
UNITED PLAZA, SUITE 1600
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

| EXAMINER | |
|---|---|
| ALPHONSE, FRITZ | |
| **ART UNIT** | **PAPER NUMBER** |
| 2133 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|---|---|---|
| 3 MONTHS | 12/18/2006 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/725,779 | PIETRASKI ET AL. | |
| | Examiner | Art Unit | |
| | Fritz Alphonse | 2133 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *14 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6,7,11,14-26,30,31,35,36 and 38-43* is/are rejected.

7)☐ Claim(s) *3-5,8-10,12,13,27-29,32-34,37 and 44-48* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *02 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

0.1 This Office Action is in response to the preliminary amendment filed on 2/14/2005. Claims 1-48 are pending.

### *Claim Objections*

1. Claims 20-24 are objected to because of the following informalities: the letter (f) using in claims 21, 22, 23 and 24 for adding further limitations to claim 20 is confusing. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 6-7, 11, 14-19, 25-26, 30, 31, 35-36, 38-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Yun (U.S. Pat. No. 6,622,281).

As to claim 1, Yun (figs. 4-5) discloses a communications system employing rate matching stages for processing a plurality of individual parity bit streams derived through puncturing a selected number of bits, a method of avoiding problematic Turbo code puncturing patterns, the method including determining whether or not a desired code rate, used to process the parity bit streams, results in a problematic puncturing pattern (col. 3, lines 22-31); and if a problematic puncturing pattern results in step (a), adjusting the number of bits punctured in each stage of the parity bit streams by increasing the number of bits punctured in one of the parity bit

streams and decreasing the number of bits punctured in another one of the parity bit streams (col. 5, lines 30-40; col. 12, lines 14-37).

As to claims 2 and 7, Yun (figs. 4-5) discloses a method comprises: adding punctured bits to the first group of bits; and removing punctured bits from the second group of bits; and step further comprises: biasing the puncturing rates of the P1 and P2 bits by adding a number of non-punctured P1 bits to the first group and decreasing the number of non-punctured P2 bits in the second group by the number of non-punctured P1 bits added to the first group (col. 5, lines 30-48).

As to claim 6, Yun (figs. 4-5) discloses a communications system employing a plurality of rate matching stages for processing a plurality of individual parity bit streams derived through puncturing a selected number of bits, a method of avoiding problematic Turbo code puncturing patterns, the method comprising adjusting the number of bits punctured in each of the parity bit streams by increasing the number of bits punctured in one of the parity bit streams and decreasing the number of bits punctured in another one of the parity bit streams (col. 13, lines 28-37); and (b) adjusting the puncturing rates of each of the individual parity bit streams while maintaining a constant overall effective coding rate by biasing the puncturing rates (figs. 13; col. 14, lines 43-55).

As to claim 11, Yun (figs. 4-5) discloses a method of identifying degradations in quality of punctured error correction coded transmissions comprising identifying a puncturing pattern which approximates a particular code rate (col. 3, lines 22-31); and adjusting a value for anticipated degradation in accordance with the matching of the puncturing pattern and the

particular code rate by increasing and decreasing the number of bits punctured in respective parity bit streams, and biasing the particular code rate (col. 5, lines 30-40; col. 12, lines 14-37).

As to claims 14-15, Yun (figs. 4-5) discloses a method comprising using Turbo code to implement the error correction coded transmissions (col. 2, lines 36-43); identifying when a non-punctured bit pattern of the transmissions exhibits a periodic characteristic, with a period equal to a period of a semi-periodic impulse response of recursive encoding blocks of the Turbo code; and using the identified non-punctured bit patterns which exhibit a periodic characteristic to identify puncturing patterns with degraded performance (col. 31, lines 17-22).

As to claims 16 and 19, method claims 16 and 19 correspond to apparatus claim 1; therefore, they are analyzed as previously discussed in claim 1 above.

As to claims 17-18, Yun (figs. 4-5) discloses a method comprising using Turbo code to implement the error correction coded transmissions (col. 2, lines 36-43); identifying when a non-punctured bit pattern of the transmissions exhibits a periodic characteristic, with a period equal to a period of a semi-periodic impulse response of recursive encoding blocks of the Turbo code; and using the identified non-punctured bit patterns which exhibit a periodic characteristic to identify puncturing patterns with degraded performance (col. 31, lines 17-22).

As to claims 25, 30 and 43, Yun (figs. 4-5) discloses a communications system for avoiding problematic Turbo code puncturing patterns, the system comprising a plurality of rate matching stages for processing a plurality of individual parity bit streams (col. 3, lines 21-31); means for adjusting the number of bits punctured in each stage of rate matching (col. 13, lines 28-37); and means for adjusting the number of bits punctured in each of the plurality of parity bit streams by increasing the number of bits punctured in one of the parity bit streams and

decreasing the number of bits punctured in another one of the parity bit streams, and biasing the puncturing rate of a problematic puncturing pattern (col. 5, lines 30-40; col. 12, lines 14-37).

As to claims 26, 31, 36 the claims have substantially the limitations of claim 1; therefore, they are analyzed as previously discussed in claim 1 above.

As to claims 38-39, Yun (figs. 4-5) discloses a system further comprising means for using Turbo code to implement the error correction coded transmissions (col. 2, lines 36-43); the system further comprising means for identifying when a non-punctured bit pattern of the transmissions exhibits a periodic characteristic, with a period equal to a period of a semi-periodic impulse response of recursive encoding blocks of the Turbo code; and means for using the identified non-punctured bit patterns which exhibit a periodic characteristic to identify puncturing patterns with degraded performance (col. 31, lines 17-22).

As to claims 35, Yun (figs. 4-5) discloses a communications system for identifying degradations in quality of punctured error correction coded transmissions, the system comprising means for identifying a puncturing pattern which approximates a particular code rate (col. 3, lines 22-31); and means for adjusting a value for anticipated degradation in accordance with the matching of the puncturing pattern and the particular code rate increasing and decreasing the number of bits punctured in respective parity bit streams, and biasing the puncturing rate of problematic puncturing pattern (col. 5, lines 30-40; col. 12, lines 14-37).

As to claim 40, the claim has substantially the limitations of claims 25 and 30; therefore, it is analyzed as previously discussed in claims 25 and 30 above.

As to claims 41-42, Yun (figs. 4-5) discloses a system further comprising means for using Turbo code to implement the error correction coded transmissions (col. 2, lines 36-43); the

system further comprising means for identifying when a non-punctured bit pattern of the transmissions exhibits a periodic characteristic, with a period equal to a period of a semi-periodic impulse response of recursive encoding blocks of the Turbo code; and means for using the identified non-punctured bit patterns which exhibit a periodic characteristic to identify puncturing patterns with degraded performance (col. 31, lines 17-22).

***Allowable Subject Matter***

4. Claims 3, 8, 12, 27, 32, 37, 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4-5, 9-10, 13, 28-29, 33-34, 45-48 are allowed by virtue of dependency.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington, D.C. 20231

**or faxed to:** (703) 872-9306 for all formal communications.

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Fourth Floor (Receptionist).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz Alphonse, whose telephone number is (571) 272-3813. The examiner can normally be reached on M-F, 8:30-6:00, Alt. Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert De Cady, can be reached at (571) 272-3819.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Information regarding the status of an application may also be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fritz Alphonse

Art Unit 2133

December 7, 2006

ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100